Report

Mertcan Susuz

18 June 2016

1. Aim

The aim is assigning a value for each character of the alphabet. When user enters character(s) as an input, program will return the value of this character(s).

2.Python code:

a. Full code.

```python
from random import randint
letters = ("abcdefghijklmnopqrstuvwxyz")
letters_list = []
new = []
output=[]
for j in range(len(letters)):
  letters_list.append(letters[j])

print(letters_list)

for i in range(len(letters)):
    x = { letters[i] : randint(0,9) }
    new.append(x)

print(new)

user_input = input("Enter a letter:")

for char in user_input:
  index = letters_list.index(char)
  num = new[index].get(char)
  output.append(num)

print(output)
```

b. Explanation

Firstly, I created a tuple which contains all alphabet letters and created three empty list.

```python
from random import randint
letters = ("abcdefghijklmnopqrstuvwxyz")
letters_list = []
new = []
output=[]
```

Then I wrote a for loop which each letter separately adds to the list. After that process, there was a list with all the letters and I checked it.

```
for j in range(len(letters)):
    letters_list.append(letters[j])
print(letters_list)
```

I wrote one more for loop which gives me numbers randomly between 0 and 9 and assign these number to each letters.When I do that, I use dictionary for determine the keys and values.In this case, keys are letters and values are numbers.

```
for i in range(len(letters)):
    x = { letters[i] : randint(0,9) }
    new.append(x)
print(new)
```

Finally, I wrote an input code which wants an enter from user. After that, I created a for loop which checks the user's entry, creating an index and a number who represent this this index -letter- , and then append these numbers to the output. When user enter letters, the output will return numbers which represent by these letters.

```
user_input = input("Enter a letter:")

for char in user_input:
    index = letters_list.index(char)
    num = new[index].get(char)
    output.append(num)

print(output)
```

3.Java Code:

a. Full Code

```java
import java.util.Scanner;
import java.util.List;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collection;
import java.util.HashMap;
import java.util.Set;

public class asd {

        public static void main(String[] args) {

                HashMap hm = new HashMap();
                String[] letters = {"a","b","c","d","e","f","g","h","i","j",
                "k","l","m","n","o","p","q","r","s","t","u","v","w","x","y","z"};

                for (int i = 0 ; i < letters.length ; i++) {
                        hm.put(letters[i],(int)(Math.random()* 10));
}

                Set veriler = hm.entrySet();
                Set anahtarlar = hm.keySet();
                Collection degerler = hm.values();

                System.out.println("Datas : " + veriler);
                System.out.println("Keys : " + anahtarlar);
                System.out.println("Values : " + degerler);

                List<String> list = new ArrayList<String>(anahtarlar);
                List<String> values = new ArrayList<String>(degerler);

                Scanner x = new Scanner(System.in);
                System.out.println("Enter a character: ");
                char c = x.next().charAt(0);

                if (list.contains(String.valueOf(c))) {
                        System.out.println("yes");
                        System.out.println("character : " + c +
                        " and the value is : " + hm.get(String.valueOf(c)));
                }
                else
                        System.out.println("Enter a valid charachter!");
        }

}
```

b. Explanation

I used hashMap class while I writing this code in Java, because this class, hold a value for each key. Firstly, I created an array which contains all alphabet letters, then with using for loop, I assigned a number to each letter, and I put these letters and numbers to the map. In this case, I obtained keys and values together in a map.

```
HashMap hm = new HashMap();

String[] letters = {"a","b","c","d","e","f","g","h","i","j","k",
"l","m","n","o","p","q","r","s","t","u","v","w","x","y","z"};

for (int i = 0 ; i < letters.length ; i++) {
        hm.put(letters[i],(int)(Math.random()* 10));
}

Set veriler = hm.entrySet();
Set anahtarlar = hm.keySet();
Collection degerler = hm.values();

System.out.println("Datas : " + veriler);
System.out.println("Keys : " + anahtarlar);
System.out.println("Values : " + degerler);
```

Secondly, I convert these set's to the arraylist's in order to do some processes on these lists.

```
List<String> list = new ArrayList<String>(anahtarlar);
List<String> values = new ArrayList<String>(degerler);
```

Then, I used scanner method which allows the user to enter variable, and with an if statement, I check whether the entered value is equal to any letter of the alphabet. If it's "yes" then it returns the entered variable -key- , with it's value.

```
Scanner x = new Scanner(System.in);
System.out.println("Enter a character: ");
char c = x.next().charAt(0);

if (list.contains(String.valueOf(c))) {
        System.out.println("yes");
        System.out.println("character : " + c +
        " and the value is : " + hm.get(String.valueOf(c)));
                }
else
        System.out.println("Enter a valid charachter!");
```